Minisymposium: Plant models (A): plant development

IDENTIFYING DEVELOPMENTAL PATTERNS IN PLANT PHENOTYPING DATA

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The emergence of robotized plant phenotyping platforms and new generations of sensors makes available to biologists a huge amount of spatio-temporal plant data of high quality from the tissular to the whole plant scale. A strong effort has been put on sensor output treatment and high-throughput data management. Comparatively, the identification and characterization of complex plant developmental patterns using state-of-the-art methods at the crossroad between probabilistic models, statistical inference, machine learning and pattern recognition has been neglected. Hence, only a small proportion of the information contained in plant phenotyping data is really exploited. The objective of this presentation will be to show how to fill this gap transposing the approaches that made the success of computational molecular biology and quantitative ecology in the past decades. The identification of developmental patterns in plant phenotyping data will be illustrated on selected examples concerning both the root system and the above ground part of plants and both the tissular and the macroscopic scales.